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CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Stephen W. Holt
Senior Environmental Engineer
NL Industries, Inc., P.O. Box 1090
Hightstown, NJ 08520

Dear Mr. Holt:

Pursuant to Subparagraph 15(a) of the Remedial Investigation/Feasibility Study (RI/FS) Administrative Order by Consent (Order), the U.S. EPA and Illinois EPA hereby disapprove the Draft Preliminary FS Report for the NL Industries Site in Granite City, Illinois. The specific inadequacies with the report are listed below, and all of these inadequacies must be addressed for U.S. EPA and Illinois EPA to grant approval of the document.

Major Comments

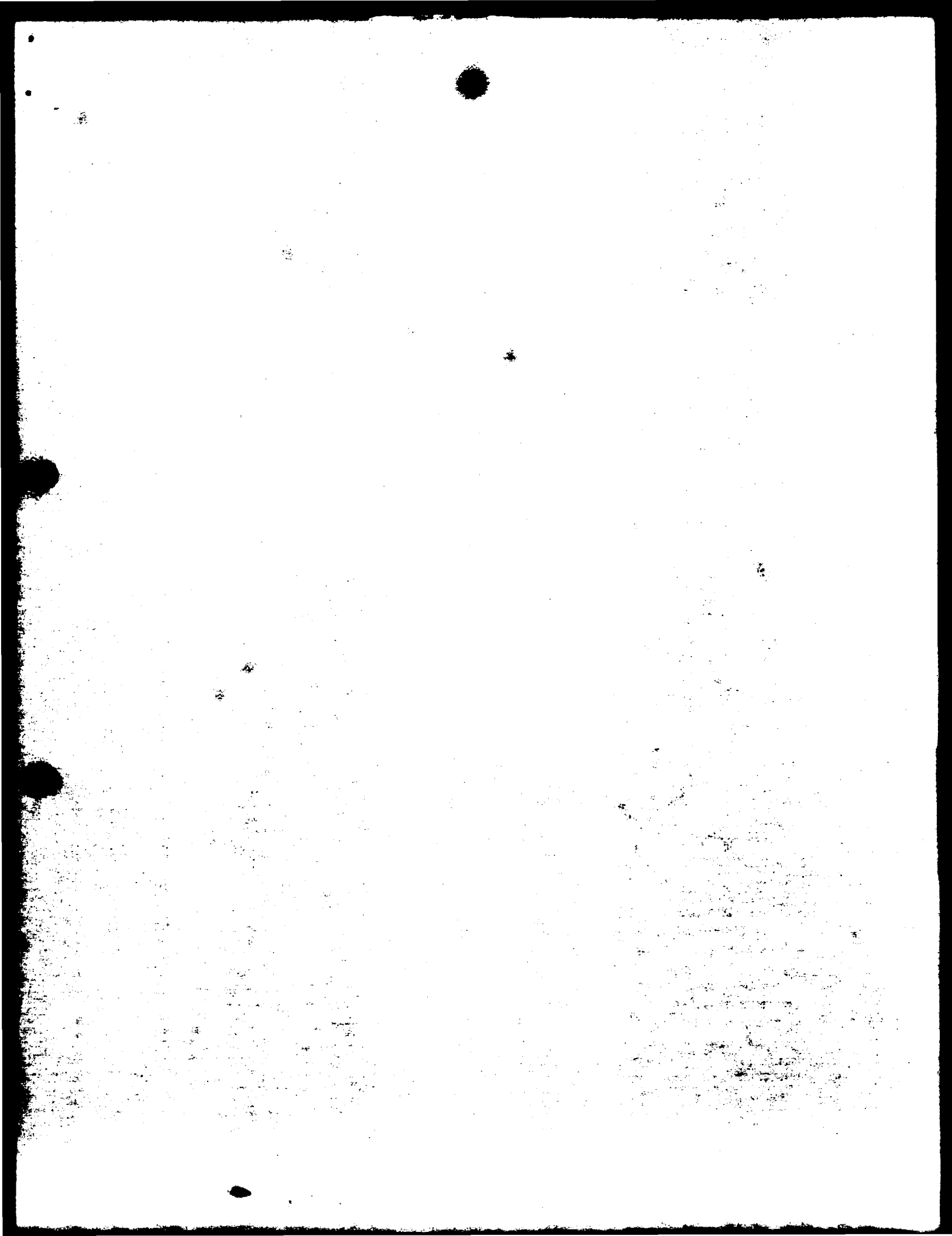
General -

1. For off-site soils and remote areas (Venice alleys and Eagle Park Acres), a lead cleanup level of 500ppm in residential areas and 1000ppm in industrial areas must be used to establish when excavation is complete. Removal to a given depth (i.e. 3 inches) is not acceptable. U.S. EPA and Illinois EPA (the Agencies) do not believe that 1500 ppm in residential soils and 4800 ppm for industrial areas is protective of human health and the environment due to direct contact with lead and potential leachability of lead to the ground water. The attached U.S. EPA "Interim Guidance on Establishing Soil Lead Cleanup Levels at Superfund Sites" and narrative explanation provide the basis for this determination. Additionally, for alternatives which involve excavation of the waste pile (E, F, and G), the attached cleanup objectives (Attachment I) must be used for other metals to determine when excavation is complete.
2. The figures indicating proposed off-site remediation areas (Figures 4, 5, and 6) must be expanded to include all residential and commercial areas with soil concentrations in excess of 500 ppm and industrial areas with concentrations in excess of 1000 ppm, and it must be stated that all areas in Venice and Eagle Park Acres where hard rubber exists in significant quantities shall be remediated to 500ppm/1000ppm as established above (i.e any additional areas discovered in the field should also be remediated).

- 3-
3. A minimum of two additional deep monitoring wells (one upgradient, these downgradient) must be installed as part of the ground water monitoring system. For alternatives A through E at least 2 wells are necessary between the Throssing property and Tri-City Trucking property and another well is necessary on Throssing property at the south end of the pile. Additionally, a monitoring system for a minimum of 30 years must be established, and it must be mentioned that a Contingency Plan will be developed for monitoring wells in the event that site-related ground water contaminants levels exceed applicable concentration limits. The list of monitoring parameters for all ground water samples needs to include all of the parameters which have been detected in the waste pile since the deeper ground water has not yet been sampled.

4. During construction activities, additional air monitoring stations must be established to quantify air lead levels in the vicinity and gauge the effectiveness of dust suppression techniques being employed. For all remedial alternatives, air monitoring stations with air monitoring data annually and gauging a number of monitoring sites remain and one may be lost if the remedial action is successful. One or two monitoring sites would not be sufficient to monitor for, if any, risks to the public or the environment. As a part of the remedial action an air monitoring plan must be developed by the Agencies. This plan must include descriptions of monitoring locations, frequency of sampling, methodology, equipment, parameters, quality control, and a Contingency Plan for remedial action in the event that air lead levels exceed the NAAQS for lead.

The use of any treatment technologies which could include solidification/stabilization/fixation, recycle/recovery, thermal treatment and chemical/physical treatment technologies would normally require air pollution control permits from the IEPA Division of Air Pollution Control. For CERCLA on-site actions demonstration of compliance with the substantive construction permit and operation permit requirements is required before any physical construction begins or operations commence. A demonstration must be made to show compliance with applicable rules and regulations. In Illinois, there are no source emission standards for lead but there is an ambient air quality standard. As a result, a demonstration must be made that the project does not cause or contribute to an air quality standard violation. This can only be achieved by submitting the results of detailed dispersion modeling and a complete air quality assessment. If the project is to last more than two years then compliance with the federal Prevention of Significant Deterioration (PSD) Rules must be achieved. A PSD permit would be required if the project is significant as determined by annual emission of 0.6 tons/lead (1).



- manganese. The concentration of manganese in downgradient G108 is 25 times higher than upgradient G110 indicating that the site has contributed to manganese concentrations in groundwater.

6. Page 20, Section 1.6.3 Flood Plain Regulations. The proposed liner location shown on figure 10 is partially in the 100 year flood plain (Insurance Rate Map of U.S. Department of Housing and Urban Development, June 1, 1978). Therefore, the following is a location specific applicable requirement for Alternatives E and F: Illinois Revised Statutes; Chapter 19; Paragraph 65(f) and (g): Flood Plains Construction Permits (attachment II). A figure needs to be added to the FS report to show the 100 year flood plain in the vicinity of the site.
7. Page 23, line 8 - add "and to provide remediation in the event that these standards are exceeded." at the end of this line.
8. Page 23, line 10 - insert "the NAAQS for lead, which is presently" between "than" and "1.5 ug".
9. Page 48, treatment of "Area 2 unpaved surfaces" and "Area 3 unpaved surfaces" - Disposal in non-RCRA landfill would only be acceptable if additional EP toxicity samples so indicate.
10. Page 52, First full paragraph - it must be stated here that sod in Venice Alleys would not virtually eliminate the potential for direct contact with waste materials and topsoil and sod over contaminated soils in Areas 1,2, and 3 would not effectively limit the migration of contaminants.
11. Page 52, Alternative C paragraph, line 8 - "eliminated" should be "minimized".
12. Page 55, second sentence - the calculations and basis indicating a volume reduction of 10% must be provided.
13. Page 65, Section 4.2.3, line 6 - "very" should be "somewhat".
14. Page 67, Section 4.3.1, line 3 - delete "ground water," from this line.
15. Page 67, Section 4.3.1, line 7 - add "in the short term." to the end of this line.

16. Page 67, Section 4.3.1, line 10 - add " and may not be possible to achieve." to the end of this line.
17. Page 68, Section 4.3.3, line 2 - "excellent" should be "good".
18. page 69, first sentence - add "with the exception of the potential for future ground water releases." to the end of this sentence.
19. Page 69, line 9 - add "with the possible exception of the ground water objective," to the end of this line.
20. Page 69, line 12 - delete "and limiting the migration of metals to ground water." from this line.
21. Page 69, line 13 - more documentation (assumptions used, etc.) must be provided for the computer model. The figure of 99.99% initially seems suspect and can only be used if thoroughly and accurately documented.
22. Page 70, Remote Areas, second sentence - delete " although" and insert "not" between "would" and "be" in this sentence.
23. Page 71, line 16 - "would" should be "may".
24. Sections 4.3.4, 4.4.4, 4.5.4 and 4.6.4. This evaluation criteria is used inappropriately in these sections to evaluate the reduction of mobility of contaminants by containment rather than by treatment. In reference to the criteria "Reduction of Toxicity, Mobility or Volume Through Treatment", the Guidance for Conducting RI/FS's (October 1988) indicates that "This evaluation criteria addresses the statutory preference for selecting remedial actions that employ treatment technologies that permanently and significantly reduce the toxicity, mobility or volume of the hazardous substances as their principal element." These sections should only discuss reductions attained through using treatment technologies.
25. Page 72 - It should be mentioned in the first two paragraphs that there is no volume or toxicity reduction with this alternative.
26. Page 73, First full paragraph - the time estimates in this paragraph and for portions of the other remedial alternatives seem excessive and should be more realistic.
27. Page 76, line 7 - "somewhat" should be inserted between "being" and "protective".

28. Page 76, line 10 - "would" should be "may".
29. Page 79, Area 3, line 2 - "good" should be "fair".
30. Page 93, Section 4.6.3, Location Specific ARAR's. See comment number 6.
31. Page 96, First paragraph - it should be mentioned that water used for dust suppression during extensive excavation would generate significant quantities of runoff that would have to be managed and would temporarily increase percolation through the waste materials.
32. Page 98, Section 4.6.7, line 1 - "highly" should be deleted from this line.
33. Page 99, Section 4.7.1, line 12 - "potentially" should be inserted between "being" and "poorly".
34. Page 102, Section 4.7.2, Location Specific ARAR's. See comment number 6.
35. Page 111, Section 4.8. The description of Alternative G indicates that slag and rubber casing would be transferred to the lined disposal area and waste material would then be capped using a multimedia cap. This description differs from table 13 which indicates that waste will either be taken to an off-site RCRA or non-RCRA landfill.
36. Page 114, Action Specific ARAR's. The text indicates that the multimedia cap, supplemental bottom liner, and leachate collection and treatment system could be constructed to meet the ARAR's, however, Alternative G does not include these components.
37. Page 124, First full paragraph, last sentence - delete this sentence.
38. Page 124, last two sentences - delete these sentences. The second-to-last sentence could be included in the Cost section.
39. Page 125, line 1 - insert "slightly" between "would" and "reduce".
40. Page 125, line 8 - this line should read: "plastic may not pass the TCLP test for lead."
41. Page 125, Section 4.9.5, line 8 - delete "unproven" from this line.

41. Page 124, Section 4.9.5, **Design Features** - "which are designed for this type of situation." should be deleted from the end of this sentence.
42. Page 124, Section 4.9.5, **Design Detail 10** - "which will be constructed" should be "may not".
44. Page 129, Second full paragraph, second sentence through end of text on page 129 - delete this material.
45. Table 5, Federal Drinking Water Standards Column, Row VII, for Chromium, Total is .05mg/L. There is no separate standard for chromium VI and chromium III. The secondary MCL for chromium is 1mg/l, not .01mg/l.
46. Figure 9. Steep sideslopes do not limit the use of a flexible media cap that includes a flexible membrane liner. The design consultant must explicitly address whether the design limit or prevent the use of such a cap. The design shown on figure 9 does not allow for the design requirements. The space between the waste pile and the property boundary should be maintained to allow placement of monitoring wells on the site and downgradient of the pile (see

comment number 3.). The head of the landfill would have to be extended to the northwest to maintain the space for monitoring wells and to obtain appropriate slopes for a cap with a flexible membrane liner. The above measures would eliminate the need for the "wall" shown on figure 9 and the problems associated with it.

All comments for previous alternatives carry through to similar text for subsequent alternatives and applicable figures and tables. Additionally, comments which relate to items which were the subject of U.S. EPA's RI Report Addendum or were disputed during the RI generation, such as the Risk Assessment and interpretation of perimeter clay boring data, are not listed above. U.S. EPA and Illinois EPA anticipate writing an FS Report Addendum which will address these issues and affected areas of text in the FS Report (e.g. the no action alternative is not protective of the public health per the CDC recommendation adopted by the Agencies), as well as any of the above - listed inadequacies which are not adequately addressed in the Final Preliminary FS Report.

Per Subparagraph 14(b)(7) of the RI/FS Order, this letter represents final agency action with respect to the Draft Preliminary FS Report; therefore, the Final Preliminary FS Report is hereby due 30 days after your receipt of this letter. U.S. EPA and Illinois EPA are available to meet with NL Industries to discuss/clarify the inadequacies listed above. Such a meeting is recommended to minimize or eliminate any disputes regarding the inadequacies.

Please contact me at (312) 886-4742 if you have any questions concerning this letter.

Sincerely yours,


Brad Bradley
Project Coordinator

Attachments

cc: Ken Miller, IEPA w/attachments

bcc: B. Kush, IL/IN #3
R. Grimes, 5CS-TUB-03
J. Kleiman, 5HR-13
F. Wrightsell, 5AR-26
J. Dalessandro, 5WD-TUB-09

ATTACHMENT

U.S. EPA and Illinois EPA have adopted a cleanup objective for lead of 500 mg/kg total lead in soil. This objective was based upon the recommendation of the Centers for Disease Control (Preventing Lead Poisoning in Children, 1985). CDC stated, "In general, lead in soil and dust appears to be responsible for blood lead levels in children increasing above background levels when the concentration in the soil or dust exceeds 500 to 1000 ppm". CDC's criterion has been used as a cleanup level at a number of lead contaminated Superfund sites across the country.

This cleanup objective is also supported by the following discussions:

Potential lead uptake into plants (particularly in gardens) must also be considered. Several factors affect lead content in urban-grown vegetables, including soil pH, level of lead in the soil, organic matter content, cation exchange capacity, presence of other elements (especially phosphorus and sulfur), plant age and species, part of the plant eaten (leaf, root, or fruit), and nearness of automobile emissions.

A study of soil contamination and plant lead uptake was conducted on Boston urban gardens and published in Communication in Soil Science and Plant Analysis (1979). The study found that plant uptake of lead was greatest in leafy greens, intermediate in root crops, and minimal in fruit crops. Based on the results of this study, it was recommended that gardeners confine gardening to fruiting crops in soil with lead levels greater than 1000 mg/kg. In addition, where soil lead ranged from 500-1000 mg/kg, gardeners were advised against planting leafy greens and plants such as beets and turnips.

Parameter	Off-Site Soils Objective (mg/kg)	Objective Basis	ADL ² - Soil (mg/kg)
Lead	500	Centers for Disease Control	0.100

¹ Based upon EP Toxicity.

² ADL - Acceptable Detection Limit. Acceptable Detection Limits have been set by CROPA for those substances where health or environmentally based cleanup objectives are below commonly attainable analytical detection limits. The stated cleanup objectives remain the goals; however, the Agency will accept analyses as proof of acceptable cleanup if they: show no detection, have a detection limit at, or below, the Acceptable Detection Limit, and are consistent with SW 846 quality assurance criteria.

³ NA - Not Applicable.

CAS/A/021/psf

Attachment I

Cleanup Objectives
TARACORP
Granite City, Illinois

On-Site Soils/

Parameter	Groundwater Objective (µg/l)	Objective (µg/l) ¹	Objective Basis	ADL ² - Water (µg/l)	ADL ² - Soil (µg/l) ¹
Antimony	146	146	AWQC	60	60
Arsenic	1000	1000	35 IAC 302.208	10	10
Barium	5000	5000	35 IAC 302.208	200	200
Cadmium	50	50	35 IAC 302.208	2	2
Chromium III	1000	1000	35 IAC 302.208	10	10
Chromium VI	50	50	35 IAC 302.208	10	10
Copper	20	20	35 IAC 302.208	25	25
Iron	1000	1000	35 IAC 302.208	100	100
Manganese	1000	1000	35 IAC 302.208	15	15
Mercury	0.5	0.5	35 IAC 302.208	0.2	0.2
Nickel	1000	1000	35 IAC 302.208	40	40
Selenium	1000	1000	35 IAC 302.208	5	5
Silver	5	5	35 IAC 302.208	10	10
Zinc	1000	1000	35 IAC 302.208	20	20
Sulfate	500000	NA ³	35 IAC 302.208	1000	NA ³
Total Dissolved Solids	1000000	NA ³	35 IAC 302.208	Not Available	NA ³

political subdivision or governmental unit or agency thereof, with whom it has any such agreement permitting the taking of any such earth, stone, sand, gravel, coal, gas, oil or other minerals or substances for compensation.

Amended by P.A. 77-161, § 1, eff. Jan. 1, 1972.

65a. Acceptance and deposit of payments

§ 18e. The Department of Transportation has the right to accept, on behalf of the State, any payments made in accordance with any agreement authorized by Sections 18a, 18b and 18c of this Act.¹ Any such payments so received shall be promptly processed by said Department for deposit in the General Revenue Fund of the State Treasury.

Amended by P.A. 77-161, § 1, eff. Jan. 1, 1972.

¹ Paragraphs 65a, 65b and 65c of this chapter.

65f. Flood plains—Defining—Reports—Planning, development and evaluation—Construction permits

§ 18f. The Department of Transportation shall define flood plains within the State of Illinois on a township by township basis and may issue permits for any construction within such flood plains on or after the effective date of this amendatory Act of 1971. The Department shall publish and distribute suitable reports, together with mapping and hydrologic exhibits pertaining to flood plains defined and established under this Act. In defining applicable flood plains, the Department shall cooperate with, and shall consider planning and zoning requirements of, regional planning agencies created by statute, counties, municipalities and other units of government. A period of thirty days shall be allowed for any agency to submit written comments to the Department regarding any proposed flood plain area. If such agency fails to return comments to the Department within the specified time period the Department may proceed with the publication and institution of the flood plain permit procedure. The Department is charged with the planning, development and evaluation of the most economic combination of retention storage, channel improvement and flood plain preservation in defining and establishing flood plain areas. All construction undertaken on a defined flood plain subsequent to the effective date of this amendatory Act, without benefit of a permit from the Department of Transportation, shall be unlawful and the Department, may in its discretion, proceed to obtain injunctive relief for abatement or removal of such unlawful construction. The Department, in its discretion, may make such investigations and conduct such hearings as may be necessary to the performance of its duties under this amendatory Act of 1971. Activity of the Department under this Section shall be limited to townships related to projects of the Department authorized by the General Assembly. The report of the Department shall be considered a final administrative decision and subject to judicial review in accordance with the provision of the Administrative Review Law.¹

Amended by P.A. 82-783, Art. XI, § 30, eff. July 13, 1982.

¹ Chapter 110, § 3-101 et seq.

65g. 100-year floodway

§ 18g. (a) The Department of Transportation shall define the 100-year floodway within metropolitan counties located in the area served by the Northeastern Illinois Planning Commission, except for the part of that area

which is within any city with a population exceeding 1,500,000. In defining the 100-year floodway, the Department may rely on published data and maps which have been prepared by the Department itself, by the Illinois State Water Survey, by federal, State or local governmental agencies, or by any other private or public source which it determines to be reliable and appropriate.

(b) The Department may issue permits for construction that is an appropriate use of the designated 100-year floodway in such metropolitan counties. If a unit of local government has adopted an ordinance that establishes minimum standards for appropriate use of the floodway that are at least as restrictive as those established by the Department and this Section, and the unit of local government has adequate staff to enforce the ordinance, the Department may delegate to such unit of local government the authority to issue permits for construction that is an appropriate use of the floodway within its jurisdiction.

(c) No person may engage in any new construction within the 100-year floodway as designated by the Department in such metropolitan counties, unless such construction relates to an appropriate use of the floodway. No unit of local government, including home rule units, in such metropolitan counties may issue any building permit or other apparent authorization for any prohibited new construction within the 100-year floodway.

(d) For the purpose of this Section:

(1) "100-year floodway" means the channel and that portion of the floodplain adjacent to a stream or watercourse which is needed to store and convey the 100-year frequency flood discharge without a significant increase in stage.

(2) "New construction" means the construction of any new building or structure or the placement of any fill or material, but does not include the repair, remodeling or maintenance of buildings or structures in existence on the effective date of this amendatory Act of 1987.

(3) "Appropriate use of the floodway" means use for (i) flood control structures, dikes, dams and other public works or private improvements relating to the control of drainage, flooding or erosion; (ii) structures or facilities relating to the use of, or requiring access to, the water or shoreline, including pumping and treatment facilities, and facilities and improvements related to recreational boats, commercial shipping and other functionally dependent uses; and (iii) any other purposes which the Department determines, by rule, to be appropriate to the 100-year floodway, and the periodic inundation of which will not pose a danger to the general health and welfare of the user, or require the expenditure of public funds or the provision of public resources or disaster relief services. Appropriate use of the floodway does not include construction of a new building unless such building is a garage, storage shed or other structure accessory to an existing building and such building does not increase flood stages.

(4) "Person" includes natural persons, corporations, associations, governmental entities, and all other legal entities.

(e) All construction undertaken on a designated 100-year floodway in such metropolitan counties, without benefit of a permit from the Department of Transportation, shall be unlawful and the Department or any affected unit of local government may, in its discretion, proceed to obtain injunctive relief for abatement or removal of such unlawful construction. The Department, in its discretion, may

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make such investigations and conduct such hearings and adopt such rules as may be necessary to the performance of its duties under this Section.

(f) This Section does not limit any power granted to the Department by any other Act.

(g) This Section does not limit the concurrent exercise by any unit of local government of any power consistent herewith.

(h) This Section does not apply to any city with a population exceeding 1,500,000.

Added by P.A. 85-905, § 2, eff. Nov. 18, 1987.

66. Public preserves or reservations—Acquiring lands

§ 19. It shall be the duty of the Department of Transportation to from time to time prepare and devise schemes, plans, ways and means for the reservation or acquisition by the State of desirable tracts of land in connection with the public waters of the State of Illinois, to the end that public reservations or preserves may be made along said public bodies of water for the use of all of the people of the State of Illinois, for pleasure, recreation and sport, and as such reservations or preserves may be made or acquired from time to time, the same shall be under the jurisdiction of the Department of Transportation. The department of Transportation is authorized, with the consent in writing of the Governor, to acquire by private purchase or by condemnation in the manner provided for the exercise of the right of eminent domain under Article VII of the Code of Civil Procedure,¹ any and all lands sought to carry out the provisions of this Section.

Amended by P.A. 82-783, Art. XI, § 30, eff. July 13, 1982.

¹ Chapter 110, § 7-101 et seq.

67. Water power data

§ 20. The Department of Transportation shall obtain data and information as to the availability of the various streams of Illinois for water power, and preserve all such data, and report to the Governor and the general assembly such facts as to the amount of water power which can be so developed, from time to time, as in its judgment should be communicated, looking to the preservation of the rights of the State of Illinois in the water power and navigation of this State.

The requirement for reporting to the General Assembly shall be satisfied by filing copies of the report with the Speaker, the Minority Leader and the Clerk of the House of Representatives and the President, the Minority Leader and the Secretary of the Senate and the Legislative Research Unit, as required by Section 3.1 of "An Act to revise the law in relation to the General Assembly", approved February 25, 1874, as amended,¹ and filing such additional copies with the State Government Report Distribution Center for the General Assembly as is required under paragraph (t) of Section 7 of the State Library Act.²

Amended by P.A. 84-1438, Art. III, § 6, eff. Dec. 22, 1986.

¹ Chapter 63, § 3.1.

² Chapter 128, § 1107.

68. Natural resources—Bulletins

§ 21. The Department of Transportation shall make particular research into the natural resources of this State in connection with any of the public bodies of water of the State, and obtain, classify and preserve all data which may be procurable in connection therewith, and from time to time disseminate for the information of the people of the

State, by way of bulletins or publications, such information as it may thus obtain.

Amended by P.A. 77-161, § 1, eff. Jan. 1, 1972.

69. Navigability—Fish propagation

§ 22. The Department of Transportation shall obtain from time to time all possible data with reference to the navigability of the public waters of the State of Illinois, and with reference to the cultivation and propagation of fish and to that end shall co-operate with the Department of Conservation, to devise ways and plans and means for the purpose of making the public bodies of water of the State more effective for the production of a cheap food supply in the way of various fish which may be cultivated or propagated in these bodies of water.

Amended by P.A. 77-161, § 1, eff. Jan. 1, 1972.

70. Flood waters—Investigation—Establishing water levels

§ 23. It shall be the duty of the Department of Transportation to maintain stream gauge stations, and to make careful investigations of the streams of the State with reference to the carrying capacity of all such streams in times of flood and under normal conditions; to prevent the carrying capacity of streams to be limited and impaired by fills, deposits, obstructions, encroachments therein, deposit of debris or material of any kind, including trees, tree limbs, logs, shrubbery, or related growths and trimmings therefrom in or upon the bank of any waters and water courses or in such proximity to such waters and water courses or any tributary thereto where the same shall be liable to be washed into or deposited along such waters and water courses, either by normal or flood flows, as a result of storms or otherwise, which may in any manner impede or obstruct the natural flow of such waters and water courses, or bridges over same, to an extent where the same cannot safely dispose of the flood waters which may naturally, lawfully, and properly be discharged therein; to require such changes in bridges across any navigable waters or streams, or bodies of water made navigable, necessary to meet the demands of navigation and commerce thereon; and to establish by regulations water levels below which water cannot be drawn down behind dams from any stream or river within the State of Illinois, in order to retain enough water in such streams to preserve the fish and other aquatic life in the stream, and to safeguard the health of the community. If the capacity of any stream is limited and impaired by reason of any of the Acts or construction in this Act provided, so as to constitute a menace to property along the course of said stream or safety of the people of the State, or results in damage, overflow, or an interruption to navigation, or if water is being drawn down, or is about to be drawn down in contravention of the water level regulations established by the Department, said Department of Transportation shall take such action as may be required, by injunction or otherwise, to prevent such encroachments or the erection of such structures, or compel the removal or modification of same, or to prevent water being drawn down below the levels established by the Department. It shall be unlawful for any person, persons, corporations, counties, cities, municipalities, or other agency to make any fill, deposit, or encroachment in, deposit or placement of felled or trimmed woody plant upon or along the bank, or erect any bridges over a stream that has a drainage area of one square mile or more in urban areas or 10 square miles or more in rural